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Claim Amendments

1. (currently amended) Apparatus for reducing cracking at the body-shank junctions of a hardened steel die block, by softening the shank portion only, the shank portion of said die block having a flat surface, said apparatus including, in combination

support structure for maintaining a die block having a body portion and a shank portion stationary during processing,

an electric heat source in close proximity to the flat surface of the body shank junction portion of the steel die block, said flat surface being uncovered,

said electric heat source being composed of parallel runs of heating elements, substantially all portions of adjacent parallel runs of heating elements being substantially equally distantly spaced from one another in a common flat plane,

said electric heat source being positioned to impinge heat from the electric heat source uninterruptedly directly on to the uncovered flat surface of the body shank junction portion of the steel die block. ~~and in an amount such that the body~~

control means which limit the amount of heat energy which impinges onto the uncovered flat surface of the shank portion to an amount which softens only the shank portion, only, of the steel die block is softened to a hardness level lower than the hardness level of the body portion of the die block which is underneath and integral with the shank

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portion at which to effect differential hardening between the shank and body portions of the die block whereby subsequent cracking at the a shank-body junction of the steel die block is substantially eliminated, and

structural heat blocking members surrounding the electric heat source at all locations except where the flat surface shank body-shank junction portion of the steel die block is located in unobstructed facing relationship to the heating elements of the heat source.

2. (currently amended) The apparatus of claim 1 further characterized in that the electric heat source is an induction heating coil, means.

3. (currently amended) The apparatus of claim 2 further including characterized in that

the means for enveloping ~~confining the induction heating currents generated by the induction heating coil includes at least partial envelopment by non-magnetic material of those portions of the induction heating coil which are not in operative relationship with the body or body portion of the die block: with non-magnetic material.~~

4. (previously presented) The apparatus of claim 3 further characterized in that the means for confining the induction heating currents are substances selected from

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the group consisting of stainless steel, granite and ceramic materials which are capable of withstanding, without substantial distortion, the temperatures generated during treatment by the induction heating coil means.

5. (cancelled)

6. (cancelled)

7. (previously presented) The apparatus of claim 1 further characterized in that the electric heat source consists of an infrared heater comprised of tungsten halogen lamps.

8. (currently amended) The apparatus of claim 7 further characterized in that the tungsten halogen lamps lie in a common flat plane and are perpendicularly spaced from the surface of the body shank junction portion of the die block.

9. (previously presented) The apparatus of claim 7 further characterized in that the tungsten halogen lamps are short wave lamps.

10. (currently amended) Apparatus for softening a selected portion of a metal steel

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object, said selected portion having a flat surface, which includes, in combination
an infrared heater,
said infrared heater being composed of parallel runs of heating elements,
said parallel runs of heating elements lying in a common flat plane,
substantially all portions of adjacent parallel runs of said heating elements being
substantially equally distantly spaced from one another,
said infrared heater being positioned to impinge electrical energy directly on the flat
surface of said selected portion from said infrared heater,
structural heat blocking members surrounding the infrared heater at all locations
except where the flat surface of the selected portion of the steel object is located in
unobstructed facing relationship to the infrared heater,
infrared heater control means which limit the depth to which the infrared heating is
applied to the selected portion having the flat surface,
to thereby soften the selected portion but not the remainder of the steel object.